

## The invention claimed is:

I.

A conductive transparent layer system with two oxide layers and a silver layer interposed therebetween on a substrate, characterized in that with a surface resistivity  $R_s$  of less than 2.9 sq, preferably less than 2.5 sq, the mean Haacke quality factor  $(\Phi_{TC} = T^{10}/R_s)$  of the layer system for the wavelengths 435, 545 and 610 nm is greater than 0.085  $^{-1}$ .

2. The layer system of claim 1, characterized in that with a surface resistivity of  $2.5_{\rm sq}$ , the transparency T at 435 nm is at least 89%, at 545 nm at least 88% and at 610 nm at least 75%.

The layer system according to claim 3, characterized in that the layer system is less than 100 nm thick, preferably 80-90 nm, with the silver layer being less than 20 nm thick, preferably 15 nm, and the two oxide layers being less than 50 nm thick, preferably between 30-40 nm.

- 4. The layer system according to claim 4, characterized in that the oxide layers contain indium and cerium, preferably 90-95 at. % indium and 5-10 at. % cerium.
- 5. The layer system according to claim 5, characterized in that the silver layer contains up to 10 wt. % copper, preferably in the range from 0.5-3% and best of all from 0.5-1%.
- 6. The layer system according to claim 1 characterized in that the layer system is less than 100 nm thick, preferably 80-90 nm, with the silver layer being less than 20 nm thick, preferably 15 nm, and the two oxide layers being less than 50 nm thick, preferably between 30-40 nm.
- 7. The layer system according to claim 6, characterized in that the oxide layers contain indium and cerium, preferably 90-95 at.% indium and 5-10 at.% cerium.



18. The layer system according to claim 7, characterized in that the silver layer contains up to 10 wt.% copper, preferably in the range from 0.5-3% and best of all from 0.5-1%.

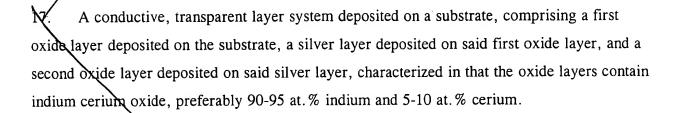
11 11

**=** 1

- 9. The layer system according to claim 1, characterized in that the oxide layers contain indium and cerium, preferably 90-95 at. % indium and 5-10 at. % cerium.
- 10. The layer system according to claim 9, characterized in that the silver layer contains up to 10 wt. % copper, preferably in the range from 0.5-3% and best of all from 0.5-1%.
- The layer system according to claim 1, characterized in that the silver layer contains up 11. to 10 wt. % copper, preferably in the range from 0.5-3% and best of all from 0.5-1%.

A method producing a conductive transparent layer system on a substrate, by depositing a first oxide layer on the substrate, a silver layer on the first oxide layer and a second oxide layer on said silver layer, characterized in that the second oxide layer is deposited by means of pulsed DC sputtering or AC-superimposed DC sputtering.

- The method of claim 12, characterized in that the frequency of the superimposed AC is == 13. between 1 and 50 MHz, preferably between 10 and 20 MHz.
- The method according to claim 13, characterized in that the AC component, defined by **11** 14. the ratio of the DC and AC power supplies is between 10-90%, preferably between 30-50%.
  - The method according to claim 12, characterized in that the total power density (AC 15. and DC) is in the range from 1-3 W/cm<sup>2</sup>, preferably, however, 2-2.2 W/cm<sup>2</sup>.
  - The method according to claim 12, characterized in that magnetron sputtering is chosen 16. as sputtering method.



- 18. The layer system according to claim 17, characterized in that the silver layer contains up to 10 wt.% copper, preferably in the range from 0.5-3% and best of all from 0.5-1%.
- 19. The layer system according to claim 18, characterized in that the layer system is less than 100 nm thick, preferably 80-90 nm, with the silver layer being less than 20 nm thick, preferably 15 nm, and the two oxide layers being less than 50 nm thick, preferably between 30-40 nm.

- The layer system according to claim 17, characterized in that the layer system is less than 100 nm thick, preferably 80-90 nm, with the silver layer being less than 20 nm thick, preferably 15 nm, and the two oxide layers being less than 50 nm thick, preferably between 30-40 nm.
  - The layer system according to claim 17 in which the second oxide layer is deposited by means of pulsed DC sputtering or AC-superimposed DC sputtering.
  - 22. The layer system of claim 21, characterized in that the frequency of the superimposed AC is between 1 and 50 MHz, preferably between 10 and 20 MHz.
  - 23. The layer system of claim 22, characterized in that the AC component, defined by the ratio of the DC and AC power supplies, is between 10-99%, preferably between 30-50%.
  - 24. The layer system of claim 21, characterized in that the total power density (AC and DC) is in the range from 1-3 W/cm<sup>2</sup>, preferably, however, 2-2.2 W/cm<sup>2</sup>.





July 3 Cons

1, 11 - Jan 11, 11 find that the 1 li

25. The layer system of claim 21, characterized in that magnetron sputtering is chosen as sputtering method.